

IN THE CLAIMS:

Please cancel Claims 12-16 and 18-23 without prejudice or disclaimer of the recited subject matter.

Please add new Claims 24-26 as shown below. All pending claims are presented below for the Examiner's convenience.

1. (Not Amended Herein) An image recording apparatus for recording images sensed by at least two image sensing means attached to a vehicle, comprising:

first image sensing means which is arranged to have an image sensing direction agreeing with a first direction of the vehicle;

second image sensing means which is arranged at a position separated a known distance from said first image sensing means to have an image sensing direction agreeing with a second direction different from the first direction; and

recording means for, when the vehicle travels in the first direction, associating first image data sensed by said first image sensing means with second image data sensed by said second image sensing means and recording said first and second image data with information concerning a time difference based on said known distance and a velocity of the vehicle.

2. (Not Amended Herein) The apparatus according to claim 1, wherein said second direction is substantially 180° different from the first direction, and said first image sensing means comprises a plurality of cameras, image sensing directions of which are deployed symmetrically about the first direction.

3. (Not Amended Herein) The apparatus according to claim 2, wherein straight lines on the image sensing directions of said plurality of cameras cross each other in front of said plurality of cameras.

4. (Not Amended Herein) The apparatus according to claim 1, further comprising:

third image sensing means which is arranged at a position near said first image sensing means to have an image sensing direction agreeing with a third direction different from the first direction; and

fourth image sensing means which is arranged at a position symmetrical to the third direction about a straight line pointing in the first direction.

5. (Not Amended Herein) The apparatus according to claim 1, wherein said second image sensing means comprises a plurality of cameras, image sensing directions of which point in at least two directions symmetrical about the second direction.

6. (Not Amended Herein) An image recording apparatus for recording images sensed by at least two image sensing means attached to a vehicle, comprising:

first image sensing means which is arranged to have an image sensing direction agreeing with a first direction of the vehicle;

a plurality of cameras which are arranged at positions separated a known distance from said first image sensing means to have image sensing directions agreeing with a plurality of directions symmetrical about a second direction different from the first direction;

means for detecting a turn of the vehicle;

selection means for selecting the camera which points at a larger angle in a counterclockwise or clockwise direction from said plurality of cameras depending on whether the vehicle has turned clockwise or counterclockwise from the first direction; and

recording means for associating first image data sensed by said first image sensing means with second image data sensed by the camera selected by said selection means, and recording said first and second image data with information concerning a time difference based on said known distance and a velocity of the vehicle.

7. (Not Amended Herein) The apparatus according to claim 6, wherein said second direction is substantially 180° different from the first direction, and said plurality of cameras have two cameras, and the image sensing direction of said cameras cross each other on an extending line of the second direction.

8. (Not Amended Herein) The apparatus according to claim 6, wherein said plurality of cameras have first to third cameras, said first camera has an image sensing direction agreeing with the second direction, and image sensing directions of said second and third cameras are respectively turned clockwise and counterclockwise to be deployed symmetrically about the second direction, and

said selection means selects

said first camera when the vehicle travels in the first direction,

said second camera when the vehicle turns counterclockwise, and

said third camera when the vehicle turns clockwise.

9. (Not Amended Herein) The apparatus according to claim 6, further comprising:

third image sensing means which is arranged at a position near said first image sensing means to have an image sensing direction agreeing with a third direction different from the first direction; and

fourth image sensing means which is arranged at a position symmetrical to the third direction about a straight line pointing in the first direction.

10. (Not Amended Herein) An image database for generating a database used for building a three-dimensional image space from image sequences sensed by a plurality of image sensing means attached to a vehicle after acquisition of image data, comprising:

a first reader for reading data from a first image data memory recorded by first image sensing means pointed in a first direction;

a second reader for reading data from a second image memory recorded by second image sensing means which is arranged at a position separated a known distance from said first image sensing means to point in a second direction different from the first direction;

a third reader for reading data from a third memory which records a moving position and traveling direction of the vehicle; and

means for associating image data read by said first reader, and image data read by said second reader based on time duration information based on the known distance and a velocity of the vehicle, with each other when traveling direction data read by said third reader indicates that the vehicle is traveling substantially straight.

11. (Not Amended Herein) The apparatus according to claim 10, wherein said second direction is substantially 180° different from the first direction, and wherein, when said second image sensing means includes two cameras having different directions,

said associating means associates image data read by said first reader and image data at a position the known distance later of those read by said second reader from the camera located at a counterclockwise or clockwise position with each other, when the traveling direction data read by said third reader indicates a clockwise or counterclockwise turn.

12 - 16. Cancelled.

17. (Not Amended Herein) An image recording method of recording images sensed by at least two image sensing means attached to a vehicle, comprising the steps of:

arranging first image sensing means to have an image sensing direction agreeing with a first direction of the vehicle;

arranging a plurality of cameras at positions separated a known distance from said first image sensing means to have image sensing directions agreeing with a plurality of directions symmetrical about a second direction different from the first direction;

detecting a turn of the vehicle;

selecting the camera which points at a larger angle in a counterclockwise or clockwise direction from said plurality of cameras depending on whether the vehicle has turned clockwise or counterclockwise from the first direction; and

recording first image data sensed by said first image sensing means and second image data sensed by the selected camera in association with each other, and information concerning a time difference based on said known distance and a velocity of the vehicle.

18 - 23. Cancelled.

Please add Claims 24-26 as follows:

C1 SUBDI

-24. (New) An image processing method for synthesizing first image data sensed by a first image sensing means with second image data sensed by a second image sensing means, wherein the first and second image sensing means are arranged separately on a mobile object with a known distance between them, the first image sensing means is arranged to have an image sensing direction aligned with a first direction of the mobile object, the second image sensing means is arranged to have an image sensing direction aligned with a second direction of the mobile object different from the first direction, and each of the first and second image data is recorded with information indicating when the image data was sensed, said method comprising the steps of:

retrieving image data sensed at a first time instant from among a group of the first image data;

retrieving image data sensed at a second time instant from among a group of the second image data, where the second time instant is a time occurring after the first instant by a time period corresponding to the known distance between the first image sensing means and the second image sensing means; and

synthesizing the image data retrieved at the first time instant and the second time instant to make panoramic image data.